

## **CHAPTER 2**

### **DESCRIPTION OF THE UPPER HATCHIE RIVER WATERSHED**

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**2.1. BACKGROUND.** The Hatchie (and Little Hatchie) River and Watershed derive their name from the Chickasaw Native Americans (the syllable “Chie” is believed to mean flowing water).

The Hatchie River is a major watercourse of southwestern Tennessee. It is of considerable geographic, cultural, and historic significance. In large measure this is due to the fact that it is the only major stream of West Tennessee that has never been impounded, channelized, or otherwise modified by human activity to any major degree, although several of its tributaries have. Its environs are indicative of what much of West Tennessee must have resembled prior to the time of pioneer settlement in the early 19<sup>th</sup> century.

The Hatchie River originates in northern Mississippi and crosses into Hardeman County, TN near the community of Pocahontas. The Hatchie flows north, in a very

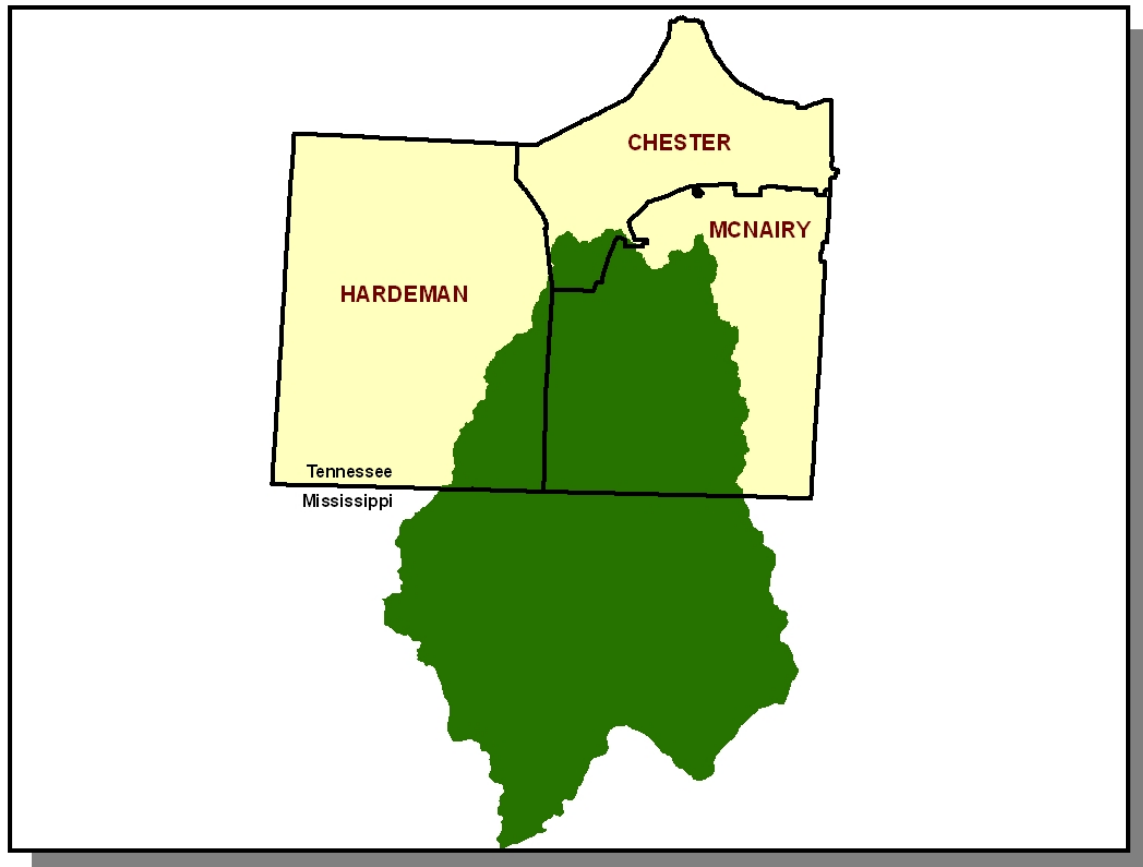
roundabout, sinuous way, then turns northwest toward the Hardeman County seat of Bolivar. While there is usually a discernable main channel, the Hatchie at this point is largely a zone of wetlands approximately one mile wide. Bolivar was the head of navigation for small, shallow-draught steamboats in the 19th century.

From Bolivar, the Hatchie continues generally northwest, crossing into Haywood County and the southwestern corner of Madison County. At this point it enters the Hatchie National Wildlife Refuge. The rest of the stream course from this point generally trends west. There is a "bow" to the north in the final part of the stream course, which forms the line between Tipton County and Lauderdale County. The Hatchie enters the Mississippi River just north of the Hatchie Towhead and just south of the Lower Hatchie National Refuge. The Hatchie is designated as a "scenic river" under the Tennessee Wild and Scenic Rivers Act.

This Chapter describes the location and characteristics of the Upper Hatchie River Watershed.

## 2.2. DESCRIPTION OF THE WATERSHED.

**2.2.A. General Location.** The Tennessee portion of the Upper Hatchie River Watershed is located in West Tennessee and includes parts of Chester, Hardeman, and McNairy Counties.

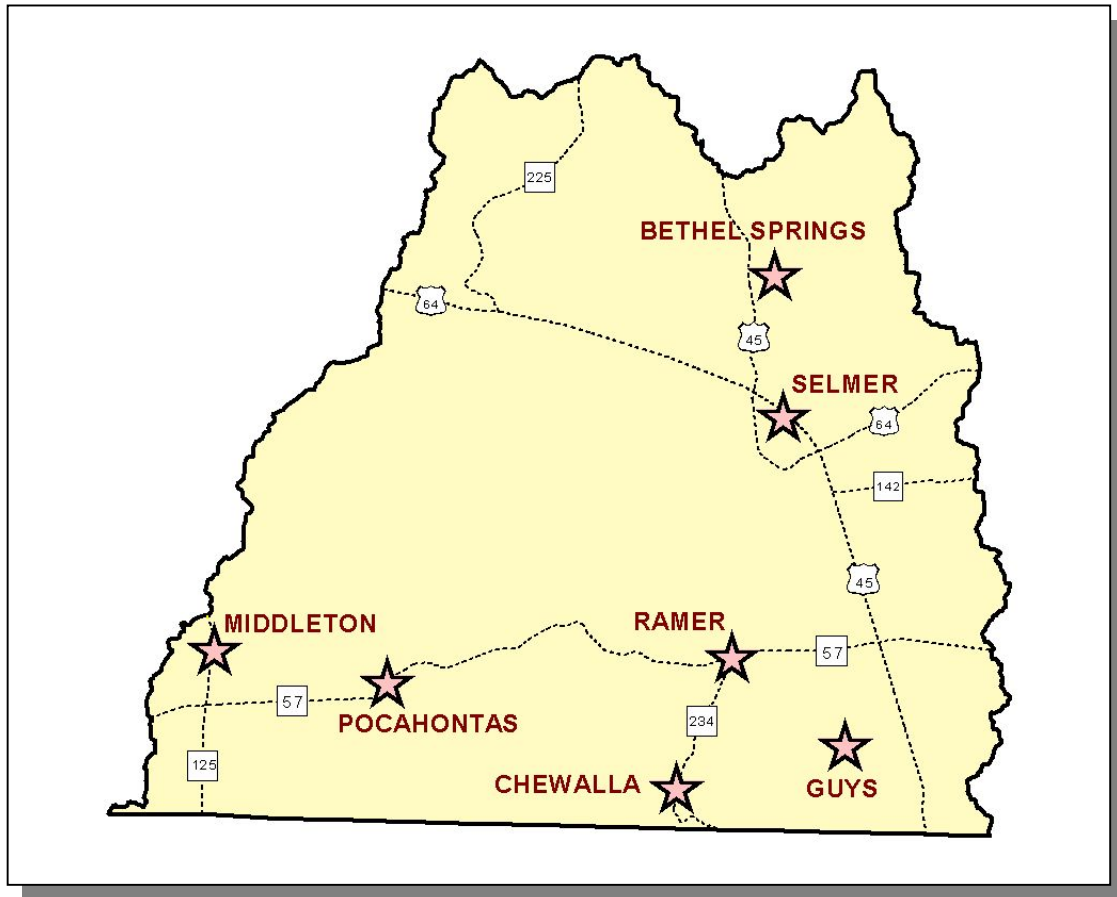


*Figure 2-1. General Location of the Upper Hatchie River Watershed.*

COUNTY	% OF WATERSHED IN EACH COUNTY
McNairy	76.4
Hardeman	19.2
Chester	4.4

*Table 2-1. The Tennessee Portion of the Upper Hatchie River Watershed Includes Parts of Three West Tennessee Counties.*

**2.2.B. Population Density Centers.** Seven highways serve the major communities in the Tennessee portion of the Upper Hatchie River Watershed.



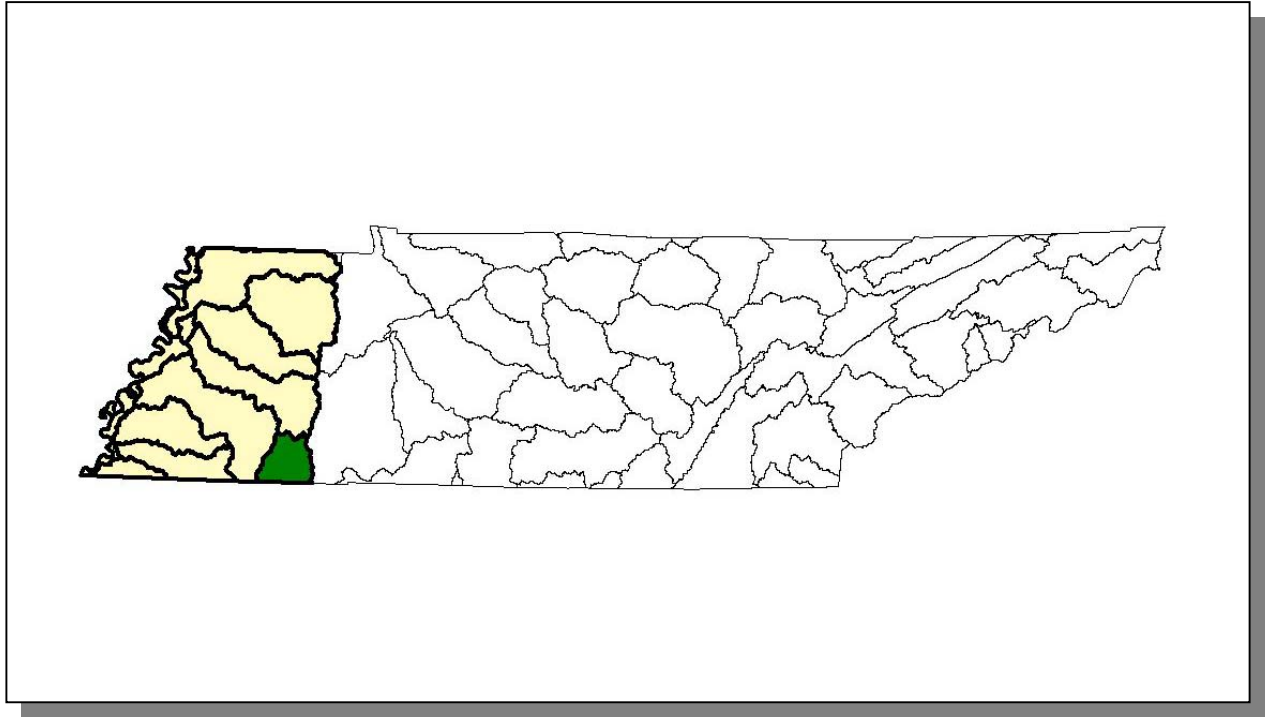
**Figure 2-2. Communities and Roads in the Tennessee Portion of the Upper Hatchie River Watershed.**

MUNICIPALITY	POPULATION	COUNTY
Selmer*	4,541	McNairy
Bethel Springs	763	McNairy
Middleton	670	Hardeman
Guys	483	McNairy
Ramer	354	McNairy

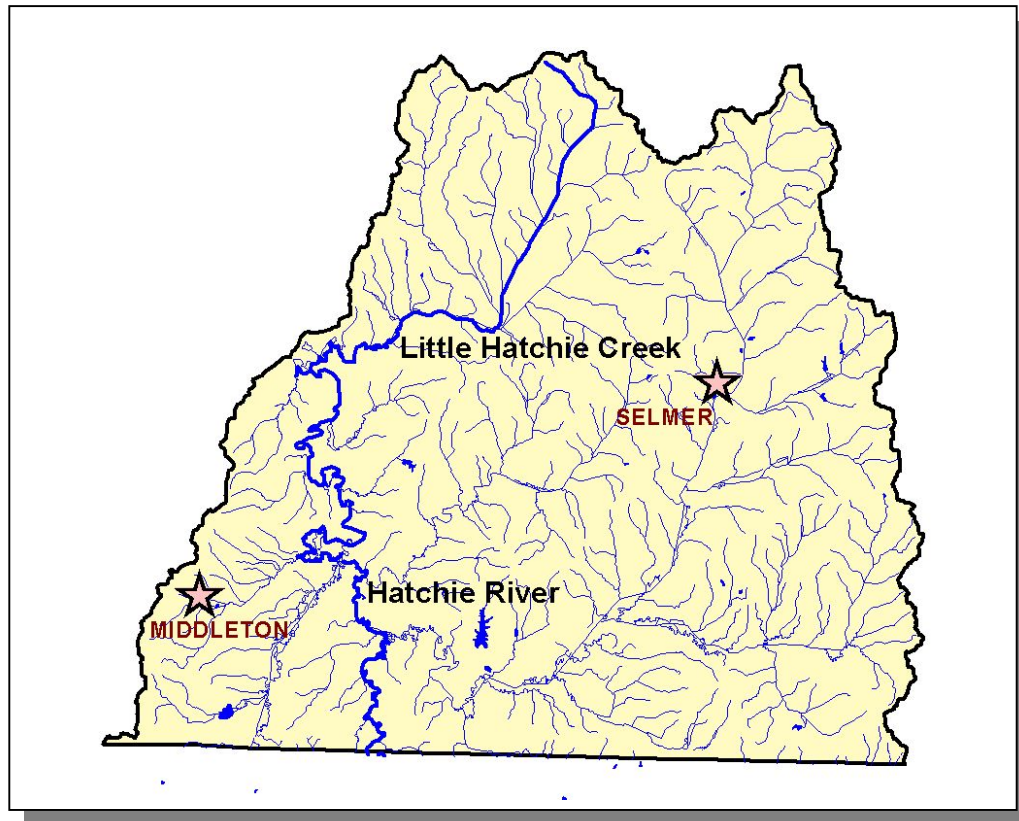
**Table 2-2. Municipalities in the Tennessee Portion of the Upper Hatchie River Watershed.** Population based on 2000 census (Tennessee Blue Book) or <http://www.hometownlocator.com>. Asterisk (\*) indicates county seat.

### 2.3. GENERAL HYDROLOGIC DESCRIPTION.

**2.3.A. Hydrology.** The Upper Hatchie River Watershed, designated 08010207 by the USGS, is approximately 1,461 square miles (1,446 square miles in Tennessee) and drains to the Hatchie River.

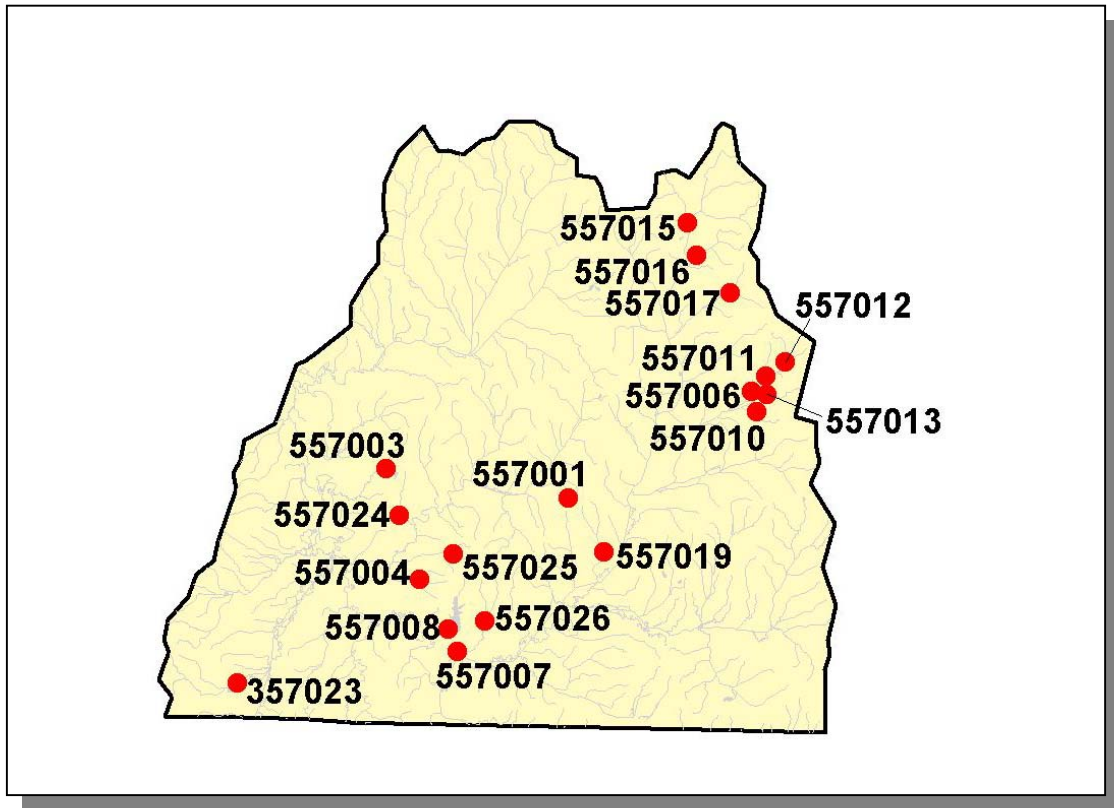


*Figure 2-3. The Upper Hatchie River Watershed is Part of the Mississippi River Basin.*



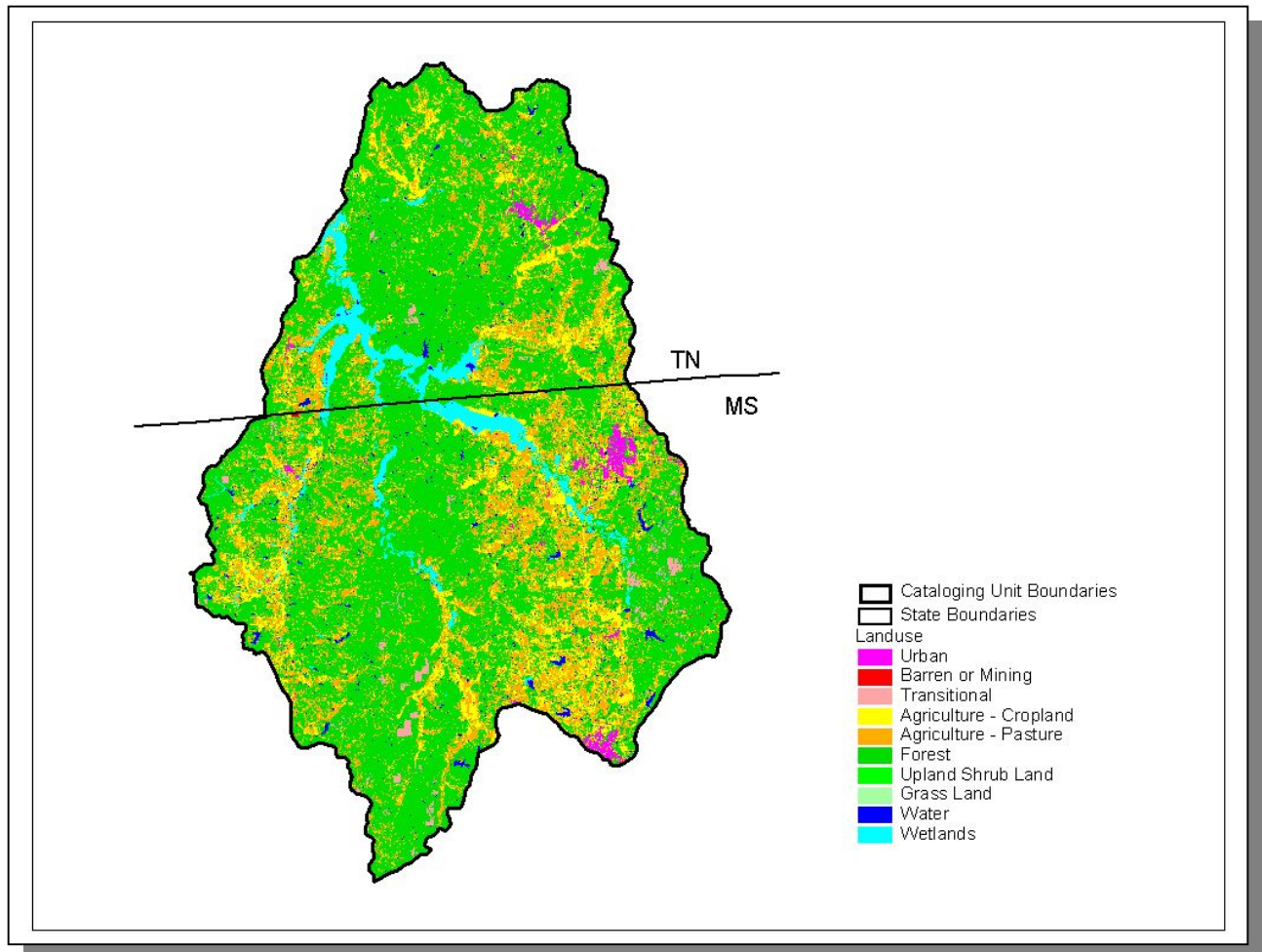
**Figure 2-4. Hydrology in the Tennessee Portion of the Upper Hatchie River Watershed.** There are 752.5 stream miles recorded in River Reach File 3 in the Tennessee portion of the Upper Hatchie River Watershed. Location of the Hatchie River and Little Hatchie Creek, and the cities of Middleton and Selmer are shown for reference.

**2.3.B. Dams.** There are 18 dams inventoried by TDEC Division of Water Supply in the Tennessee portion of the Upper Hatchie River Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.



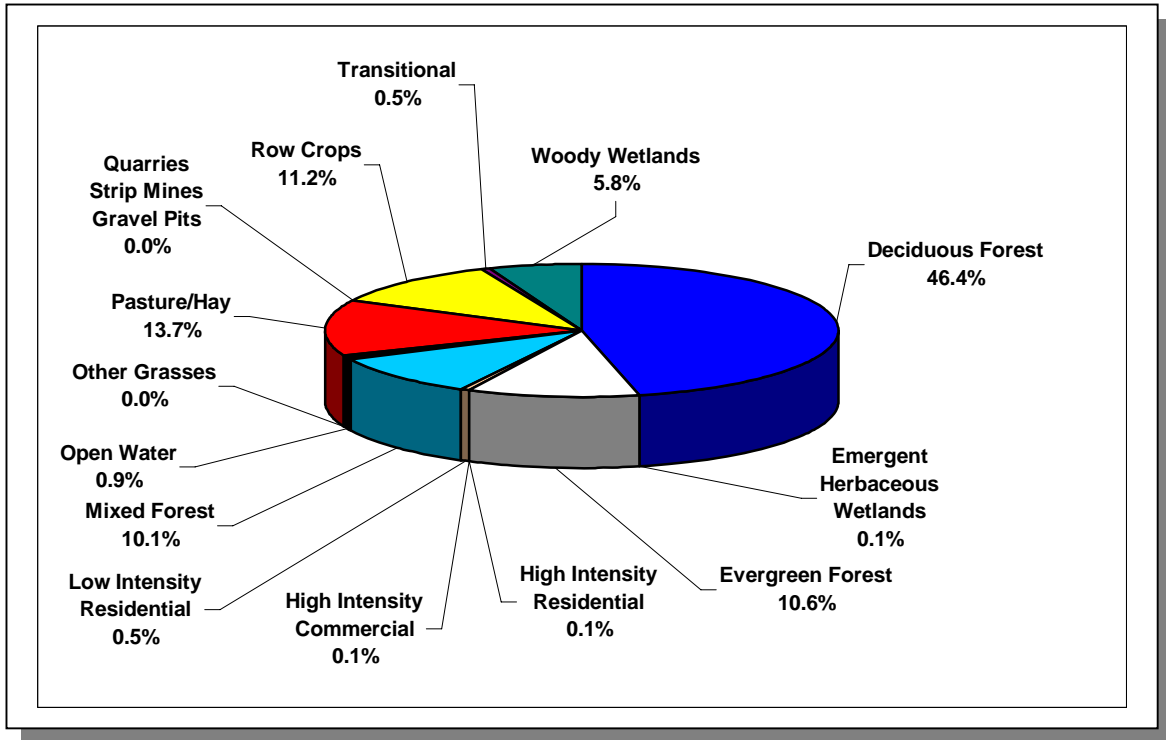
**Figure 2-5. Location of Inventoried Dams in the Tennessee Portion of the Upper Hatchie River Watershed.** More information, including identification of inventoried dams labeled, is provided in Appendix II and at <http://gwidc.memphis.edu/website/dams/viewer.htm>.

**2.4. LAND USE.** Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 1992 Multi-Resolution Land Cover (MRLC) satellite imagery.

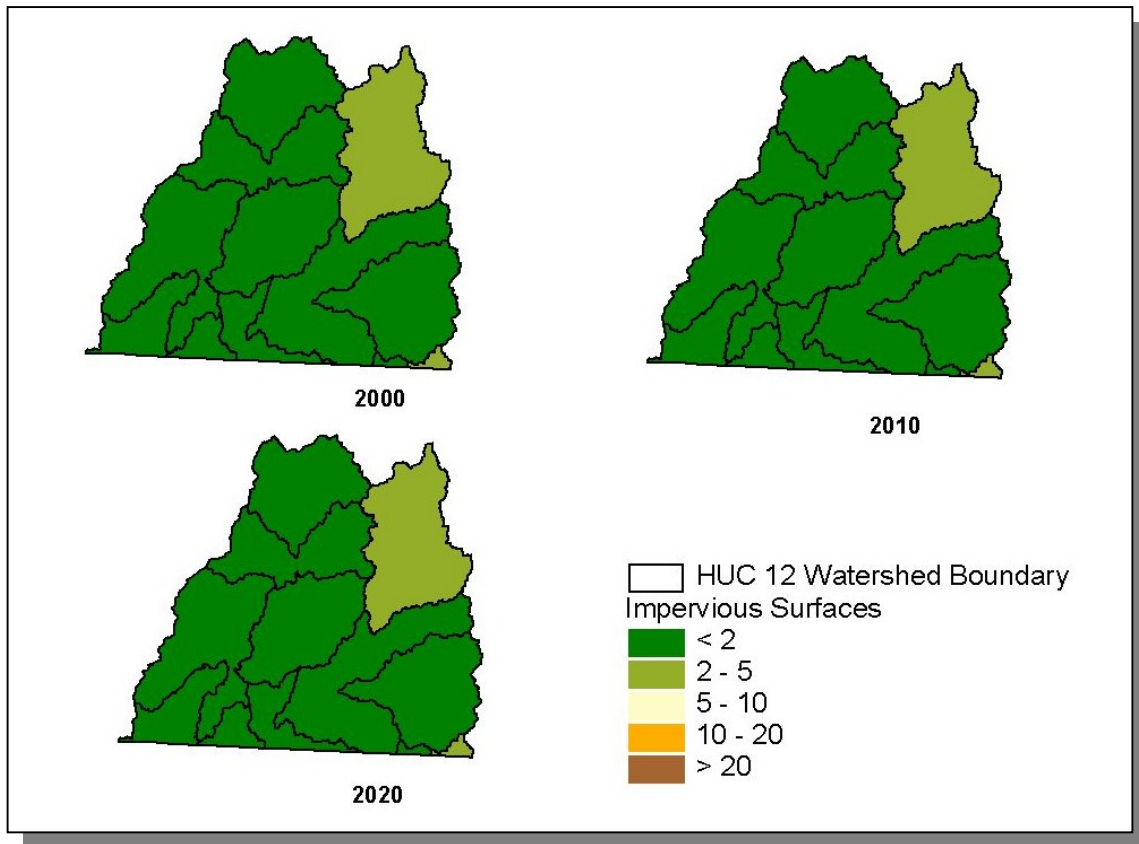


**Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.**





**Figure 2-7. Land Use Distribution in the Tennessee Portion of the Upper Hatchie River Watershed.** More information is provided in Appendix II.

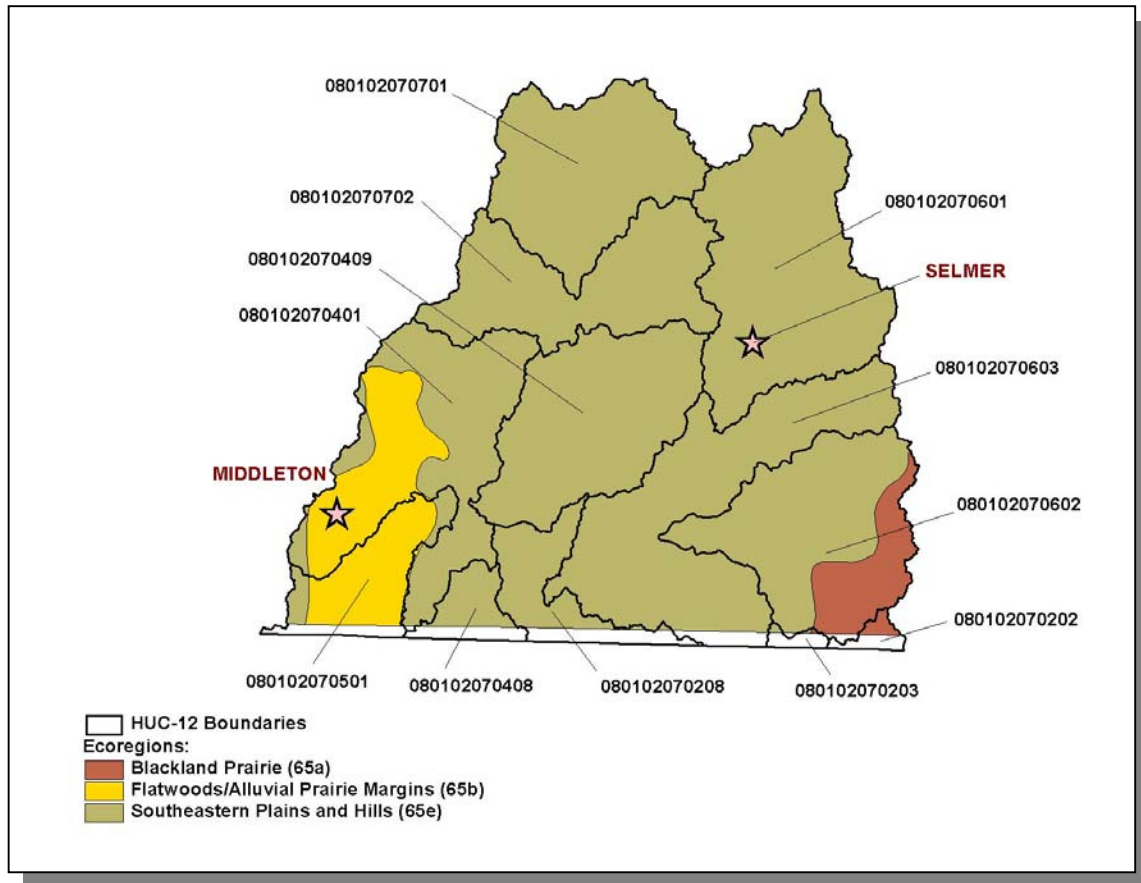


**Figure 2-8. Illustration of Total Impervious Area in the Tennessee Portion of the Upper Hatchie River Watershed.** All HUC-12 subwatersheds are shown. Current and projected total impervious cover (percent of total area) is provided by EPA Region 4. More information can be found at: <http://www.epa.gov/ATHENS/research/impervious/>

**2.5. ECOREGIONS AND REFERENCE STREAMS.** Ecoregions are relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies can aid the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

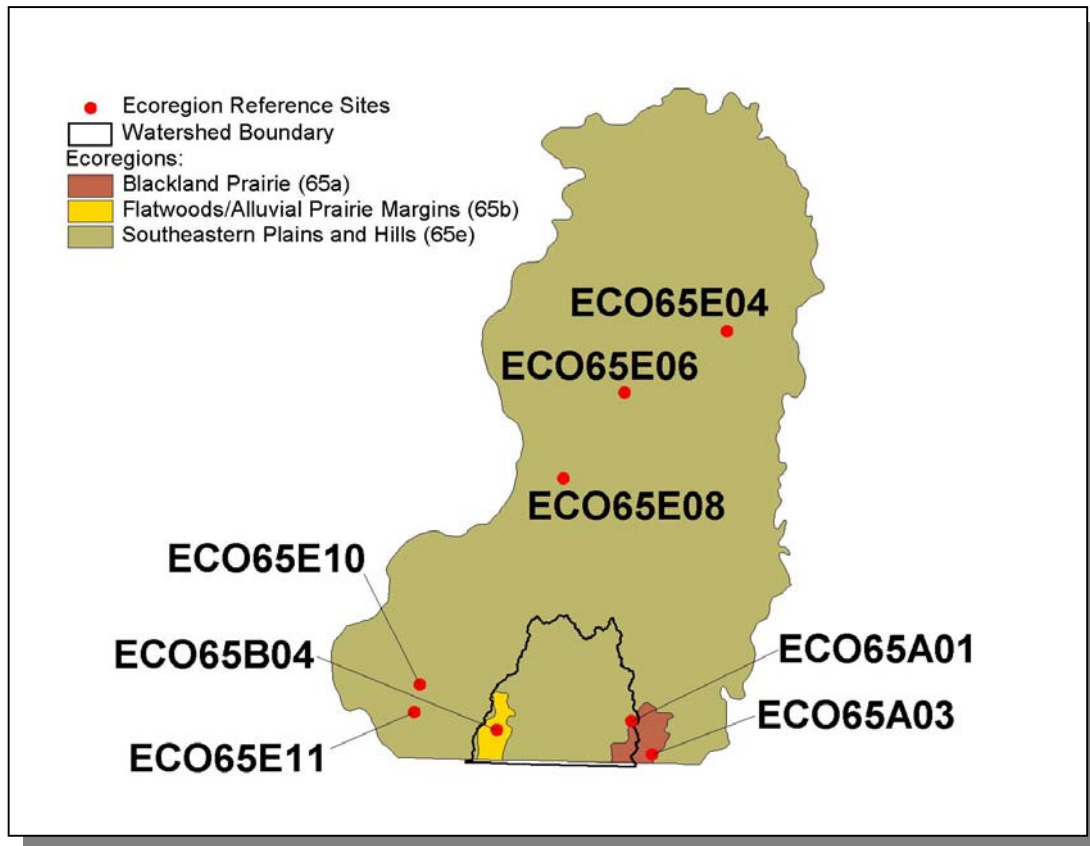
There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee. The Tennessee portion of the Upper Hatchie River Watershed lies within 1 Level III ecoregion (Southeastern Plains) and contains 3 Level IV subecoregions:

- The **Blackland Prairie Ecoregion (65a)**, extending north from Mississippi, is a flat to undulating lowland region covering only a small portion of McNairy County, Tennessee. Although there is some Cretaceous-age chalk, marl, and calcareous clay that characterizes the region in Mississippi and Alabama, the northern extent of the Blackland Prairie in Tennessee is not distinct. To the south, the natural vegetation had dominant trees of sweetgum, post oak, and red cedar, along with patches of bluestem prairie. Today, the area is mostly in cropland and pasture, with small patches of mixed hardwoods.
- The **Flatwoods / Alluvial Prairie Margins (65b)** extend north from Mississippi, but the distinctiveness of this narrow ecoregion belt fades quickly from Ripley, Mississippi north into Tennessee. In Mississippi and Alabama, this is a transition region between the Blackland Prairie and the more forested plains and hills. Some areas, such as the Flatwoods name implies, are heavily forested, but the prairie and alluvial areas now have significant amounts of cropland and pasture. In Tennessee, the small region stands out as lower, less hilly agricultural land compared to the forested Southeastern Plains and Hills (65e) that surround it.
- The **Southeastern Plains and Hills (65e)** contain north-south trending bands of sand and clay formations. Tertiary-age sand, clay, and lignite are to the west, with Cretaceous fine sand, fossiliferous micaceous sand, and silty clays to the east. Elevations reach over 650 feet with more rolling topography and relief than the Loess Plains (74b) to the west. Streams have increased gradient, sandy substrates, and distinct faunal characteristics. Natural vegetation is oak-hickory forest, grading into oak-hickory-pine to the south.



**Figure 2-9. Level IV Ecoregions in the Tennessee Portion of the Upper Hatchie River Watershed.** HUC-12 subwatersheds and locations of Middleton and Selmer are shown for reference.

Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition and may not be representative of a pristine condition.



**Figure 2-10. Ecoregion Monitoring Sites in Level IV Ecoregions 65a, 65b, and 65e.** The Tennessee portion of the Upper Hatchie River Watershed is shown for reference. More information, including which ecoregion reference sites were inactive or dropped prior to 01/01/2006, is provided in Appendix II.

## 2.6. NATURAL RESOURCES.

**2.6.A. Rare Plants and Animals.** The Heritage Program in the TDEC Division of Natural Heritage maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

GROUPING	NUMBER OF RARE SPECIES
Crustaceans	1
Birds	3
Fish	3
Mammals	2
Reptiles	2
Plants	12
<b>Total</b>	<b>23</b>

**Table 2-3. There are 23 Known Rare Plant and Animal Species in the Tennessee Portion of the Upper Hatchie River Watershed.**

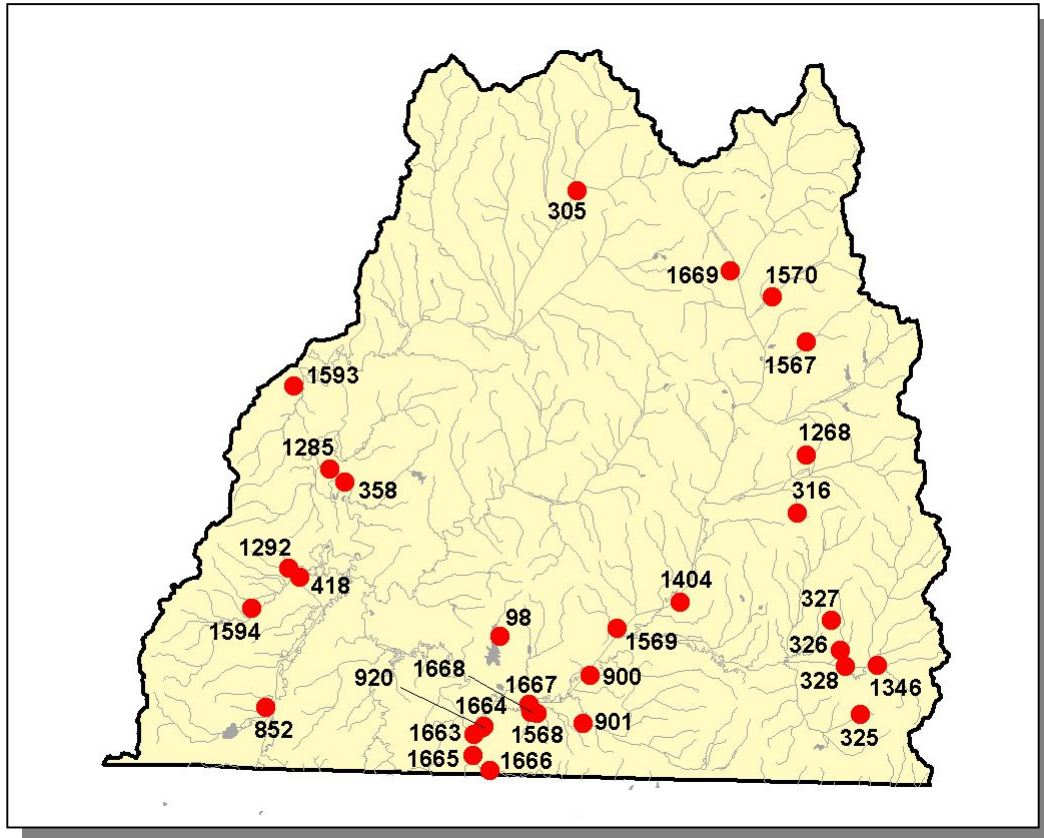
In the Tennessee portion of the Upper Hatchie River Watershed, there are three known rare fish species and one known rare crustacean species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
<i>Ammocrypta beani</i>	Naked sand darter		D
<i>Ammocrypta vivax</i>	Sealy sand darter		D
<i>Noturus stigmosus</i>	Northern madtom		D
<i>Falicambarus horton</i>	Hatchie burrowing crayfish		E

**Table 2-4. Rare Aquatic Species in the Tennessee Portion of the Upper Hatchie River Watershed.** State Status: E, Listed Endangered by the Tennessee Wildlife Resources Agency; D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency. More information may be found at <http://www.state.tn.us/environment/na/>.

**2.6.B. Wetlands.** The Division of Natural Areas maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee's Wetland Strategy, which is described at:

<http://www.state.tn.us/environment/na/wetlands/>



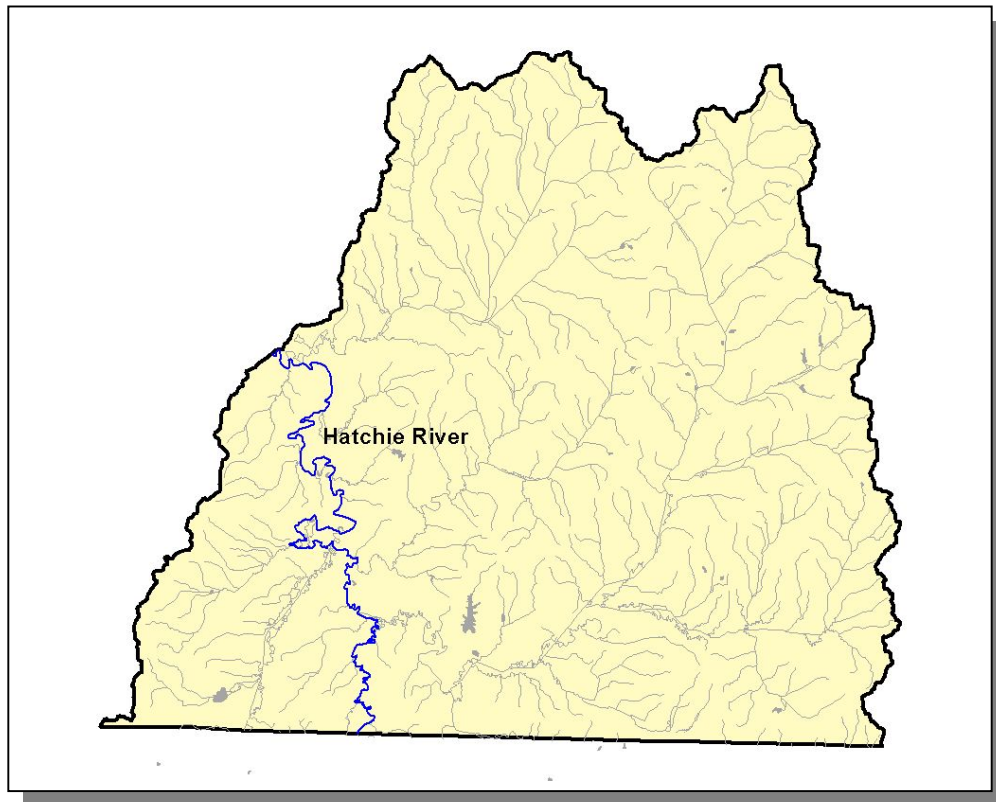
**Figure 2-11. Location of Wetland Sites in TDEC Division of Natural Heritage Database in the Tennessee Portion of the Upper Hatchie River Watershed.** This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands. There may be additional wetland sites in the watershed. More information, including identification of wetland sites labeled, is provided in Appendix II.



## 2.7. CULTURAL RESOURCES.

**2.7.A. State Scenic River.** The Hatchie River is designated as a State Scenic River.

**Hatchie River** is designated as a Class I Natural River Area as a swamp river.

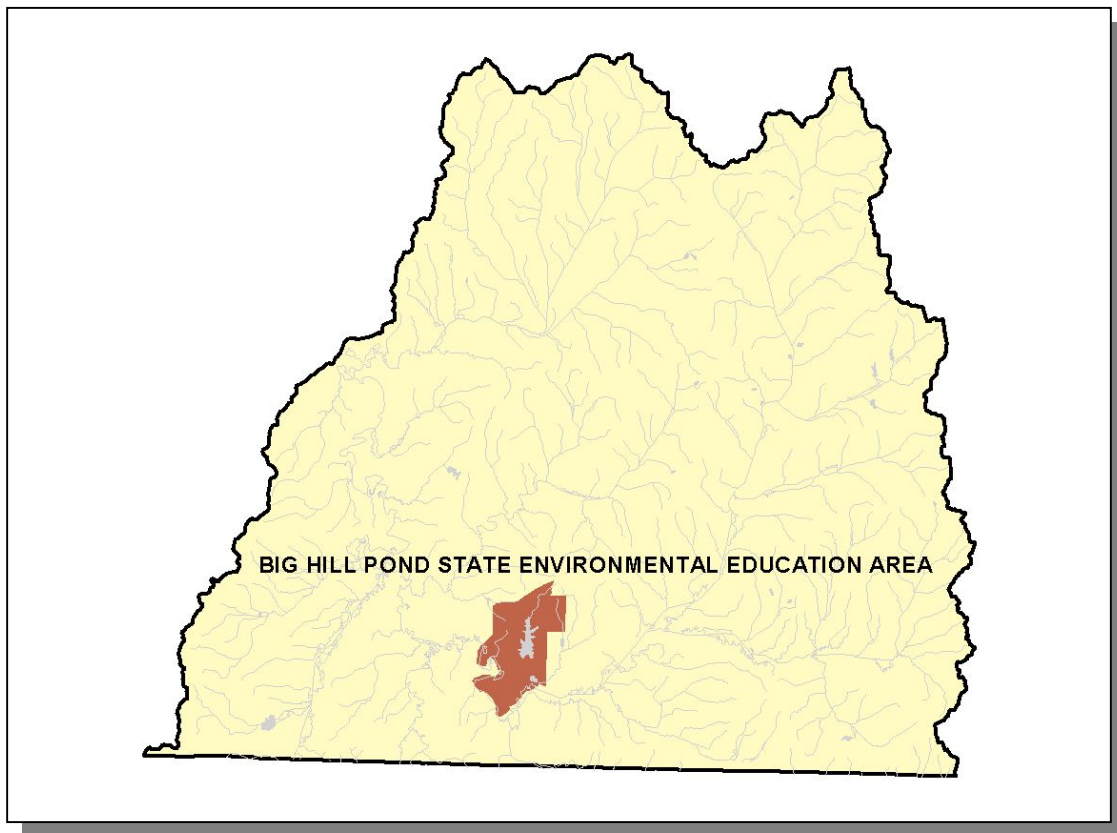


**Figure 2-12. The Hatchie River is Designated a State Scenic River.** More information can be found at <http://www.state.tn.us/environment/nh/scenicrivers/>.



**2.7.B. Public Lands.** Some sites representative of the cultural heritage are under state or federal protection:

- Big Hill Pond State Environmental Education Area is a 5,000-acre state park located in McNairy County. More information may be found at <http://www.state.tn.us/environment/parks/parks/BigHillPond>.



**Figure 2-13. Public Lands in the Tennessee Portion of the Upper Hatchie River Watershed.**  
Data are from Tennessee Wildlife Resources Agency.

**2.8. TENNESSEE RIVERS ASSESSMENT PROJECT.** The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service's Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with "Assessment" as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

<http://www.state.tn.us/environment/wpc/publications/riv/>

STREAM	NSQ	RB	RF	STREAM	NSQ	RB	RF
Crooked Creek	4			Nail Creek)	3		
Cypress Creek	3	2	2	North Fork Oxford Creek	4		
Hadger Creek	4			Oxford Creek	3		
Hamstring Creek	4			Roland Creek	4		
Hatchie River	1	2	1	Rose Creek	3		
Indian Creek	4			Sandy Creek	4		
Kise Creek	3			South Fork Oxford Creek	4		
Little Hatchie River	3,4			Turkey Creek	3		
Mosses Creek	3			Tuscumbia River	1	2	
Muddy Creek (East)	4			Unnamed Trib to Cypress Creek			
Muddy Creek (West)				Wilson Creek	4		

**Table 2-5. Tennessee Rivers Assessment Project Stream Scoring in the Upper Hatchie River Watershed.**

Categories: NSQ, Natural and Scenic Qualities  
RB, Recreational Boating  
RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery  
2. Regional Significance; Good Fishery  
3. Local Significance; Fair Fishery  
4. Not a significant Resource; Not Assessed